

IN THE SPECIFICATION

Please amend the specification as follows:

The paragraph beginning at page 1, paragraph 1, line 2 is amended as follows:

[0001] The present invention relates to fault classification, and in particular to principle principal component analysis based fault classification for a process.

The paragraph beginning at page 1, paragraph 3, line 1 is amended as follows:

[0003] Principle Principal Component Analysis (PCA) is used to model a process, and clustering techniques are used to group excursions representative of events based on sensor residuals of the PCA model. The PCA model is trained on normal data, and then run on historical data that includes both normal data, and data that contains events. Bad actor data for the events is identified by excursions in Q (residual error) and T2 (unusual variance) statistics from the normal model, resulting in a temporal sequence of bad actor vectors. Clusters of bad actor patterns that resemble one another are formed and then associated with events.

The paragraph beginning at page 4, paragraph 16, line 1 is amended as follows:

[0016] In one embodiment, a principle principal component analysis (PCA) model 130 is coupled to the controller 120, and receives the values of the sensors at predetermined times. The time is at one-minute intervals for some processes, but may be varied, such as for processes that may change more quickly or slowly with time. PCA is a well known mathematical model that is designed to reduce the large dimensionality of a data space of observed variables to a smaller intrinsic dimensionality of feature space (independent variables), which are needed to describe the data economically. This is the case when there is a strong correlation between observed variables.